

Use of Mobile Technology for Humanitarian Action and Partner Capacity Building in the Health Sector

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BLUF

- DOD should consider leveraging its expertise in technology to assist USG Agencies (and their partners), Host Nation and NGOs build capacity for “Health Sector” disaster preparedness and response capabilities.
- Benefits: Tangible, Targeted and Tactical
- Should be part of a larger Engagement strategy



BRIEFING TOPICS

- Introduce TATRC
- Showcase GlobalMedAid Toolkit
- Possible Starting Point for Health Tech Outreach:
Use of a Mobile Learning Capability

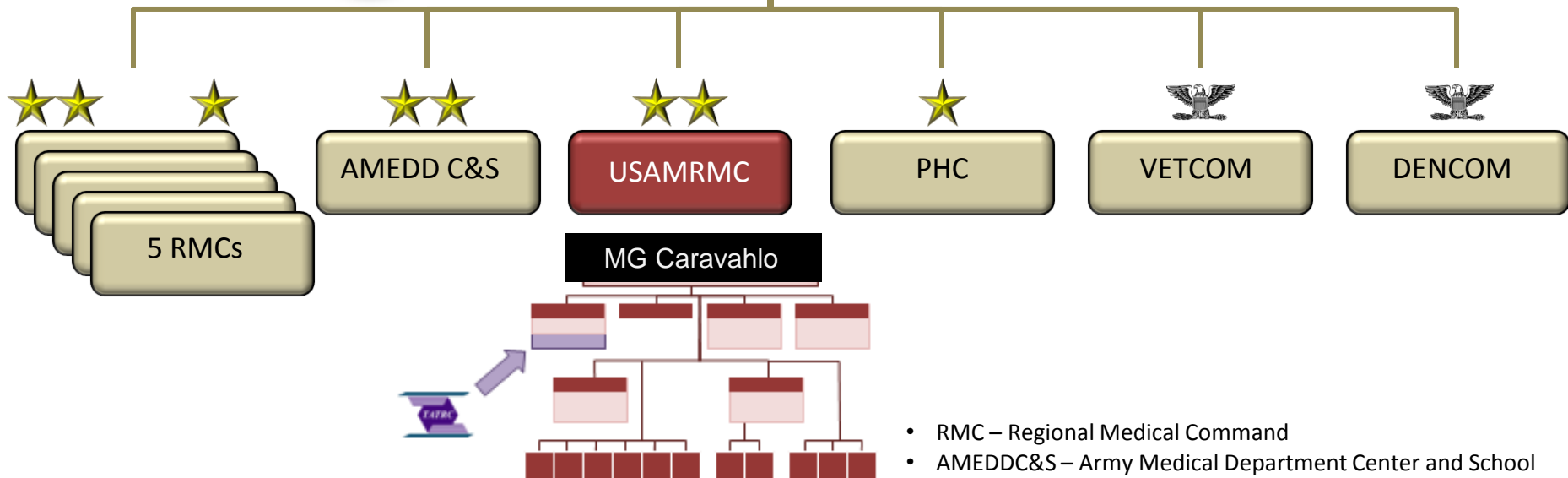


U.S. Army Medical Command- Org Chart



aka: AMEDD or MEDCOM

Surgeon General of Army
LTG Patricia Horoho



- RMC – Regional Medical Command
- AMEDDC&S – Army Medical Department Center and School
- **USAMRMC – US Army Medical Research and Materiel Command**
- PHC – Public Health Command
- VETCOM – Veterinary Command
- DENCOM – Dental Command



WHO IS TATRC?

Science & Technology Scouts for Military Medicine

Innovate

Explore

Activist

Management





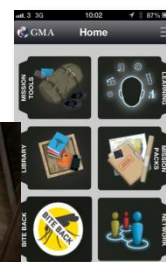
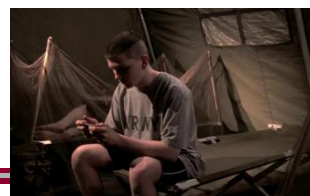
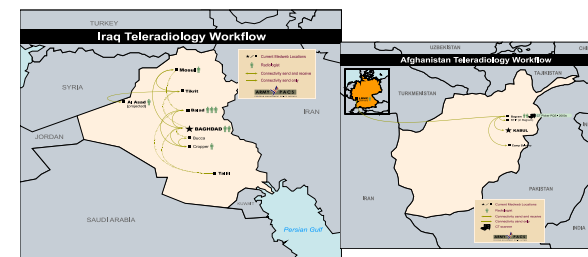
ABOUT TATRC

- TATRC is U.S. Army Medical Research and Materiel Command's (USAMRMC) **corporate laboratory** for advanced technology research.
- Focus on world-class **integrated research and development** for the Department of Defense.
- A **unique perspective** from working across garrison, theater and global health mission sets.
- **Proven track record of developing and applying technology** to solve problems. "Hands-on"
- Maintains **collaborative relationships** with InterAgency, academia and industry.



Examples of TATRC Technology Engagement w/COCOMs

- **CENTCOM “10+ years leading TELEMEDICINE”**
 - 2004- Ongoing AKO Teleconsultation- “Joint” email consult service for OIE/OEF (includes civilian care)
 - First Joint Operational Needs Statement (JUONS) for a medical capability. “Joint Telemedicine Medical Network”- Teleradiology Systems
- **AFRICOM**
 - 2009: Telecom Infra for USAMRU- Kenya
 - 2009- Clinical Trial in the Congo
 - 2013: Mobile Learning
 - Force Health Protection

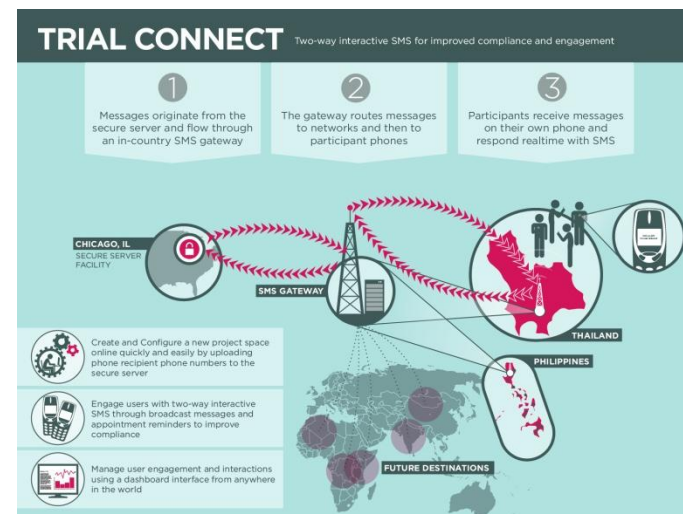
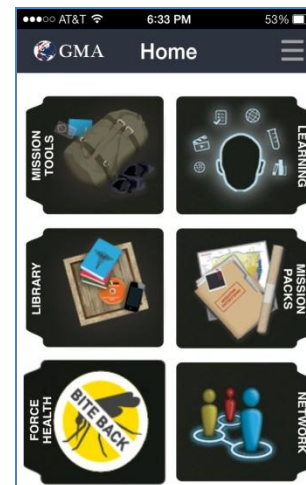




Examples of Technology Engagement w/COCOMs



- EUCOM
 - 2010-2012- Coalition Warfare Project with 22 partner nations focused on developing a mobile learning infrastructure
- PACOM
 - 2010-2013: International SMS service to support operation of a dengue vaccine trial
 - English-Thai machine foreign language translation project with MARFORPAC Experimentation Center





Leveraging Technology R&D

- TATRC research is examining ways in which **mobile technology** can enhance global health engagement activities.
- Starting with DOD **lessons learned** from the Haiti Response.



Operation Unified Response

- **An Independent Review of the U.S. Government Response to the Haiti Earthquake** (published by USAID in 2012) and **DoD's lessons learned from Operation Unified Response**
- Identified the lack of information sharing that occurred in Haiti and the need for better information management systems.
- Need to create HADR related training programs for staff and leadership for "just-in-time" deployments.

Independent Review of the U.S. Government
Response to the Haiti Earthquake

Final Report

March 28, 2011





SOUTHCOM Medical Gaps

UNCLASSIFIED

USSOUTHCOM 2012 Science & Technology Integrated Priority List (STIPL) #8 STIPL / Medical Support to Civil Authorities

1. (U) Tier I/ Tier II/ Tier III. Building Partnerships / Shape / Provide Aid to Foreign Partners and Institutions

2. (U) **Synopsis of Problem.** Currently there is no formalized method for documenting non-US civilian patient encounters in Foreign Humanitarian Assistance / Disaster Relief (FHA/DR), Humanitarian and Civic Action (HCA) or Defense Support of Civil Authorities (DSCA) situations. There is a lack of capability to conduct effective and efficient civilian medical patient intake, collect and maintain records of patient care, conduct patient medical care and location tracking, and lastly an ability to view the database of patient information for epidemiological purposes and analyses for operational medical and logistics planning activities. During FHA/DR engagements, operations are further constrained by the inability of aid providers to communicate fluently with patients in their native language. The ability to efficiently document, analyze and share sanitation, disease monitoring and epidemiological information in an electronic form hinders partnering and collaboration within the Area of Regard.

3. (U) **Mission Analysis Source/Guidance Source.** Oslo Accords; DODI 2205.02, Humanitarian and Civic Assistance Activities; DODD 6010.22, National Disaster

Medical System; USSOUTHCOM Theater Campaign
Presidential Directive-21: Public Health and Medical
Council Biodefense Deputies Committees (March and
Healthcare Research and Quality-DoD "Recommendat
and Evacuee Movement, Regulating, and Tracking Sys
on Children and Disasters, POTUS Report Executive S
DoD-VA-DHS Federal Patient Movement CONOPS (d
Emergency Support Function #8: Public Health and M

4. (U) **Shortfall Description.**

a. (U) **Operational Risk.** Significant

b. (U) **Type.** Sufficiency

c. (U) **Description of the Problem/Impact if not.**
CDR USSOUTHCOM's ability to meet the operatio
FHA/DR medical tasks requested by the USC/DoS
assumes medical, legal and diplomatic risk by failin
documentation of medical care provided to other na
exists during FHA/DR situations as well as in ever
HCA event such as Operation CONTINUING PRO
and FHA/DR medical response activities do not me
protocols for medical care documentation. For pol
the lack of an available DoD means to quantify the
impacts of a disaster make it difficult to quantify w

UNCLASSIFIED



i. (U) **Technical Challenge:** SOUTHCOM medical support to Partner Nations in response to FHA/DR contingencies is hampered by the absence of a medical

information system that is well-suited for the region's unique characteristics and environment. Current DoD Health IT systems are too large, cumbersome, and complex to effectively support Partner Nations in austere conditions. Smaller scale, mobile and rugged IT solutions capable of being rapidly inserted into remote locations and requiring little infrastructure support are needed. Similarly, enhanced machine translation with a broad medical corpus and capable of operating in austere conditions with little/no infrastructure or connectivity support are required.

2012 SOUTHCOM STIPL to DDR&E Medical Support to Civil Authorities



SOUTHCOM Medical Gaps



INTERNATIONAL MEDICAL
INTERPRETERS ASSOCIATION
Leading the advancement of professional interpreters



American
Red Cross

CALL FOR HAITIAN CREOLE INTERPRETERS TO SERVE IN USNS COMFORT

February 1, 2010

Dear Haitian medical interpreters:

This is a unique opportunity for medical interpreters to serve providers and patients.

The IMIA has been recruiting Haitian Creole medical interpreters interested in doing field work in Haiti. The USNS Comfort is assisting Haitian victims since the disaster took place. The American Red Cross in Miami is organizing the placement in the USNS Comfort and is working now with the IMIA to recruit professional medical interpreters. Over 100 interpreters were deployed last month and there will be rotations of 34 interpreters each month. Attached you will find the recruitment criteria, guidelines and the deployment guidelines for travel in it (items they should bring etc). Please read it carefully. **If you are seriously interested and committed to volunteer for field work at the USNS Comfort, please do the following:**

- 1) log on to www.miami.redcross.org
- 2) Complete the volunteer application under the section titled – Become a Red Cross Volunteer.
- 3) Save it to a word document and email to usa.redcross.org
- 4) then log on to www.mybackgroundcheck.com and complete the background check under the Greater Miami & The Key Chapter.
- 5) The IMIA will be sending all the applications that are relevant to this mission to a designated contact at the Miami Red Cross.*
- 6) Please email info@imiaweb.org to let us know if you are volunteering so that we can include you in a mailing list for future field opportunities.

The Red Cross needs rotations of 34 Haitian medical interpreters to leave Miami on different dates. The Red Cross will pay for travel to Miami and provide lodging and meals aboard the USNS Comfort as well as telephone cards. Time of field work is 30 days.

We look forward to hearing from you.

The IMIA Haiti Relief Team

*Any information provided to the IMIA for this project will ONLY be shared with the Miami Red Cross for the specific purposes of this project.

DEFENSE LANGUAGE INSTITUTE FOREIGN LANGUAGE CENTER Pearl of Mariner, California	
HAITIAN ENGLISH BASIC Language Survival Guide June 2004	
1. Greetings / Introductions	2. Emergency Items
3. Interrogation	4. Food & Nutrition
5. Numbers	6. Police & Transportation
7. Days of the Week / Time	8. Medical / General
9. Direction	10. Medical / Body Parts
11. Location	12. General Military
13. Description	14. Ending

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SOUTHCOM

Health ICT Interagency and Component Surgeons Conference

- POC: CAPT Miguel Cubano, SOUTHCOM Surgeon
- Miami, FL 28-30 Sept, 2009
- Convened 80 senior subject-matter experts from all USG organizations involved in planning, funding, support, execution, and evaluation of USG-sponsored health sector activities in USSOUTHCOM AOF.
- Harmonize/synchronize efforts, to further the goals of ensuring security, enhancing stability, and enabling partnerships by means of the application of health ICT.
- Benefit : Participating agencies obtained an unprecedented perspective on the breadth and depth of USG sponsored health sector activities happening in the region.







Technology Research Program

- **Global MedAid™** (GMA) is the name of the overarching mobile technology cooperative R&D initiative.
- Focus on **Bring Your Own Device** (BYOD) or use of Personal Devices and **Open Source Software** that can be shared.
- Three prototype capabilities have emerged as a potential “**engagement toolkit**” to help us prepare/perform, communicate, record and share information better, faster, cheaper...
- Developing internally for DOD first— **see one, do one, teach one...**



Engagement Toolkit

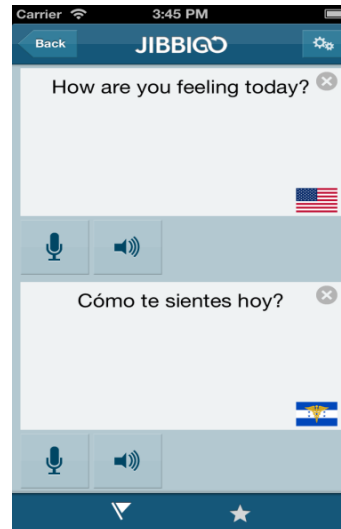
Still under development-prototypes available

Whole stronger than the parts

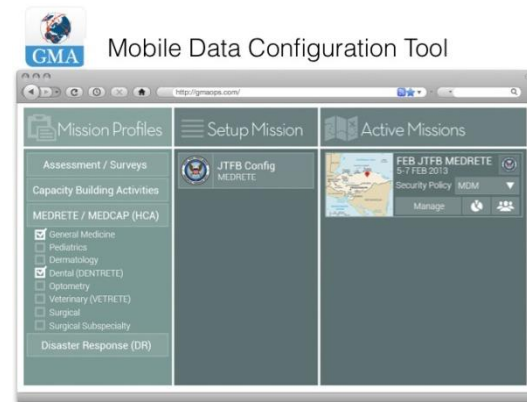
Mobile Learning



Foreign Language Machine Translation



Mobile Data Collection



Global Med Aid Toolkit

Mobile Learning-
Information Sharing, Training
and Productivity Tools
Lead: AFRICOM

Language Learning &
Machine Translation and
Communications Capabilities

Sister Project in PACOM

Mobile Data Capture
for Health Engagements

Lead: SOUTHCOM



Scene- setter using Disaster Use Case



Movie of concept in action:

<https://www.youtube.com/watch?v=CYqJ-aAHeqQ>



GMA Learn

Mobile Learning –as an example of how DOD can provide tools to help itself and others in disaster preparedness and response



What is mobile learning?

m-Learning is the instantaneous delivery of relevant content, uniquely designed to render on mobile devices (Smartphones and Tablets)--in a way that quickly satisfies an individual's need for targeted, interactive information to gather knowledge, learn a skill, solve a problem or seek help, from a remote location.

Fun Facts

54% of smartphone use is for apps.

Average owners look at their phone 150 times per day.

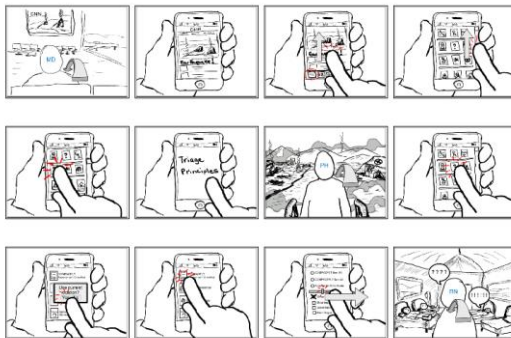
70% smartphone owners won't leave home without

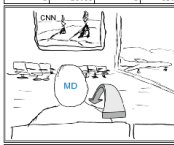


For more interesting facts see the opening video for Mobile World Congress 2013

<http://moblearn.blogspot.co.uk/2013/03/mobile-economy-2013.html>

TATRC's Entry Point into m-Learning

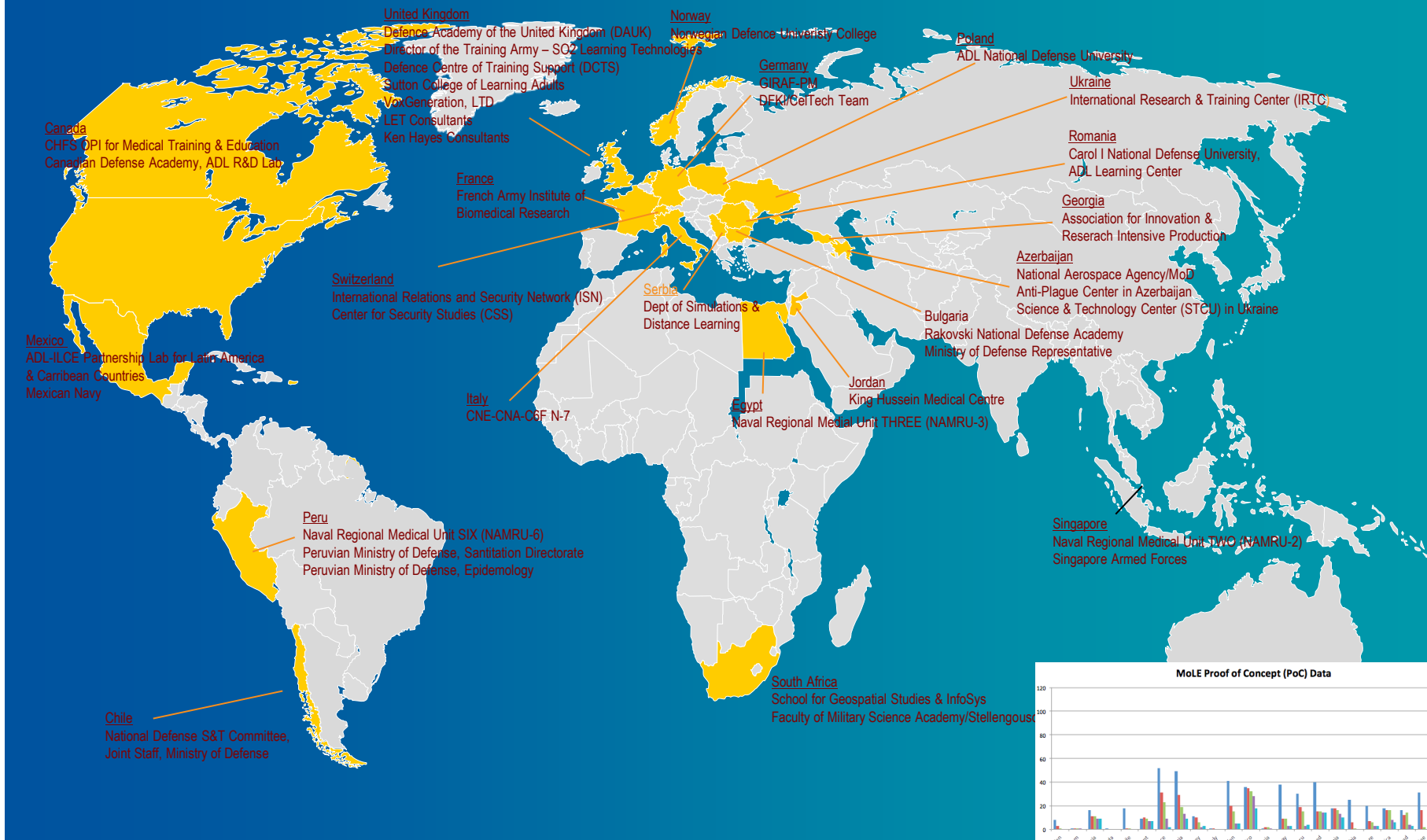
- **Mobile Learning Environment Project (2010-2012)**
 - Coalition Warfare Program sponsored by OSD AT&L to support research with foreign partners to enhance interoperability and unclassified information-sharing.
 - Used Humanitarian Relief/Disaster Response as the primary test case to develop a cross-platform “prototype” mobile learning App infrastructure
 - Trial w/ 22 countries as proof of concept.



Scene	Duration	Panel	Duration	Scene	Duration	Panel	Duration	Scene	Duration	Panel	Duration
1	30:00	1	05:00	1	30:00	2	05:00	1	30:00	3	05:00
											
Dialogue IN ENGLISH: You're a physician sitting in the airport waiting to deploy to an earthquake stricken area as part of a humanitarian disaster response team and want to brush up on your emergency triage skills while waiting for your flight.				Dialogue Having mobile access to reference information should be as easy as accessing the news.				Dialogue Fortunately, you have the MDO application installed and ready at your fingertips.			
Action Notes Noises of a busy airport can be readily heard as a news program on the television displays the latest earthquake update.				Action Notes All goes quiet with black background (focus on device). CNN application displaying same image as on TV prominent in app.				Action Notes Actor brings up menu displaying apps running in the background (behind news app) to select MDO application.			
Slugging INT. AIRPORT - AFTERNOON				Slugging INT. AIRPORT - AFTERNOON				Slugging INT. AIRPORT - AFTERNOON			
Notes ACTOR - Healthcare provider (physician) LANGUAGE - ENGLISH											

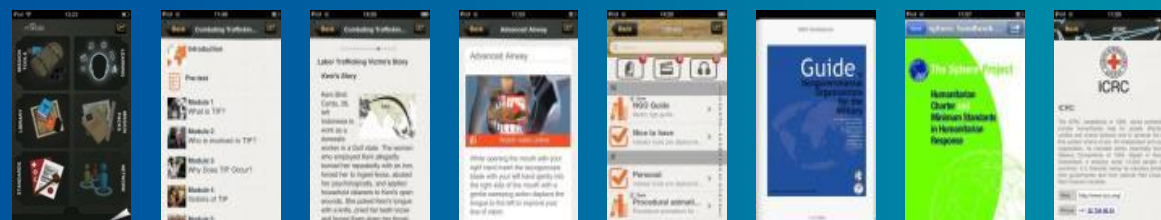
Early drawings Fall 2011

International Trial of a Mobile Learning Infrastructure



Components

E
C
O
S
Y
S
T
E
M



Mobile
Content

Open web
standards



App
Software

Public
Apple and
Android
app stores



Hardware

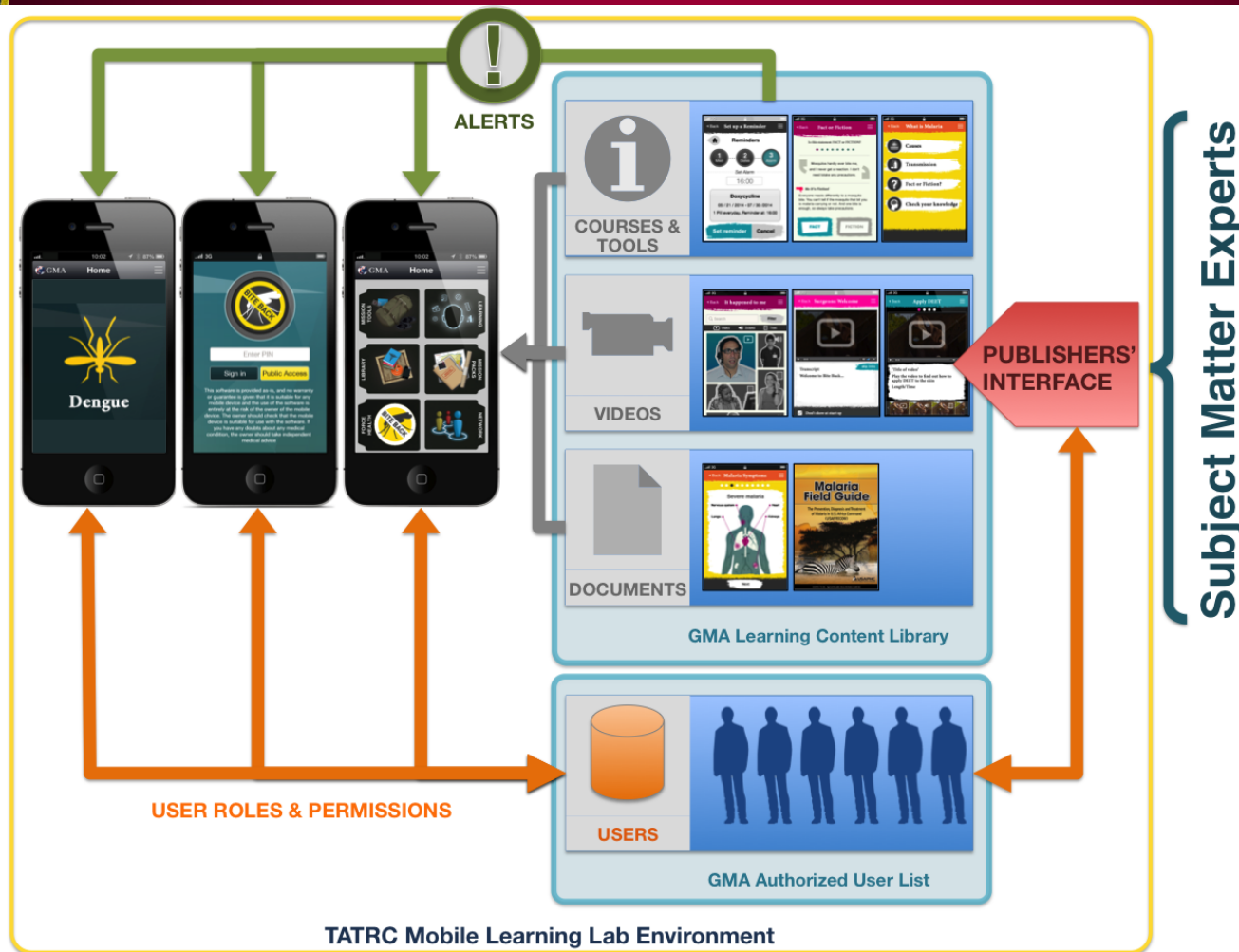
SYSTEM- WIDE INFRASTRUCTURE

Distribution,
Curation,
Management

Transfer
from
MoLE



Functional Architecture



More than a Single App



Authoring Tools

m-learning suite

Welcome back, ben.smith@tribalgroup.com
[Account details](#) | [Change password](#) | [Log out](#)

Content Users Reports Permissions

Courses Package Builder Content-Type Subjects Publishers News

Course Creation



Create

Thumbnail No file chosen

Thumbnails should be 128 x 128 pixels in JPEG, GIF, PNG format. Any other sizes will be scaled.

Title*

Description*

Click with right button or in the buttons below in order to add, remove, or rename a node.



Language

- Categories
 - AutoStart
- BiteBack
 - Get the Facts
 - Fact or Fiction
 - Hot Spots
 - It happened to me
 - Signs and Symptoms
 - Maximize Protection
 - Train Up!
 - Check references
 - Take a Course
 - Test your knowledge
- + BiteBack: Malaria
- + Learning
- + Mission Packs
- + Mission Tools
- + Network
- Standards

Mobile UI Customization

Customizing **Unsaved (0)**

You are currently customizing:

BiteBack



General

Top Menu Bar

Header

Page

Background

Type background

Color R 247 G 219 B 0

Sub Item

In App Mobile-based Evaluation

iPod 12:08

Evaluation Close

Tasks

1. The What to pack checklist will help you prepare. Select a minimum of three things you think you will need. Add an item you think is missing.

Done

2. Go to the Trafficking in Persons (TIP) course.

- Do the Pre-test ((five module 1 questions as a pre test)).
- Then complete Module 1, including the questions at the end.

Go

iPod 12:08

Evaluation Close

Questions

1.1 Rate your confidence in using the checklist.

low 4 high

OK

☐ Prefer not to say

iPod 12:08

Evaluation Close

Tasks

1. The What to pack checklist will help you prepare. Select a minimum of three things you think you will need. Add an item you think is missing.

Review

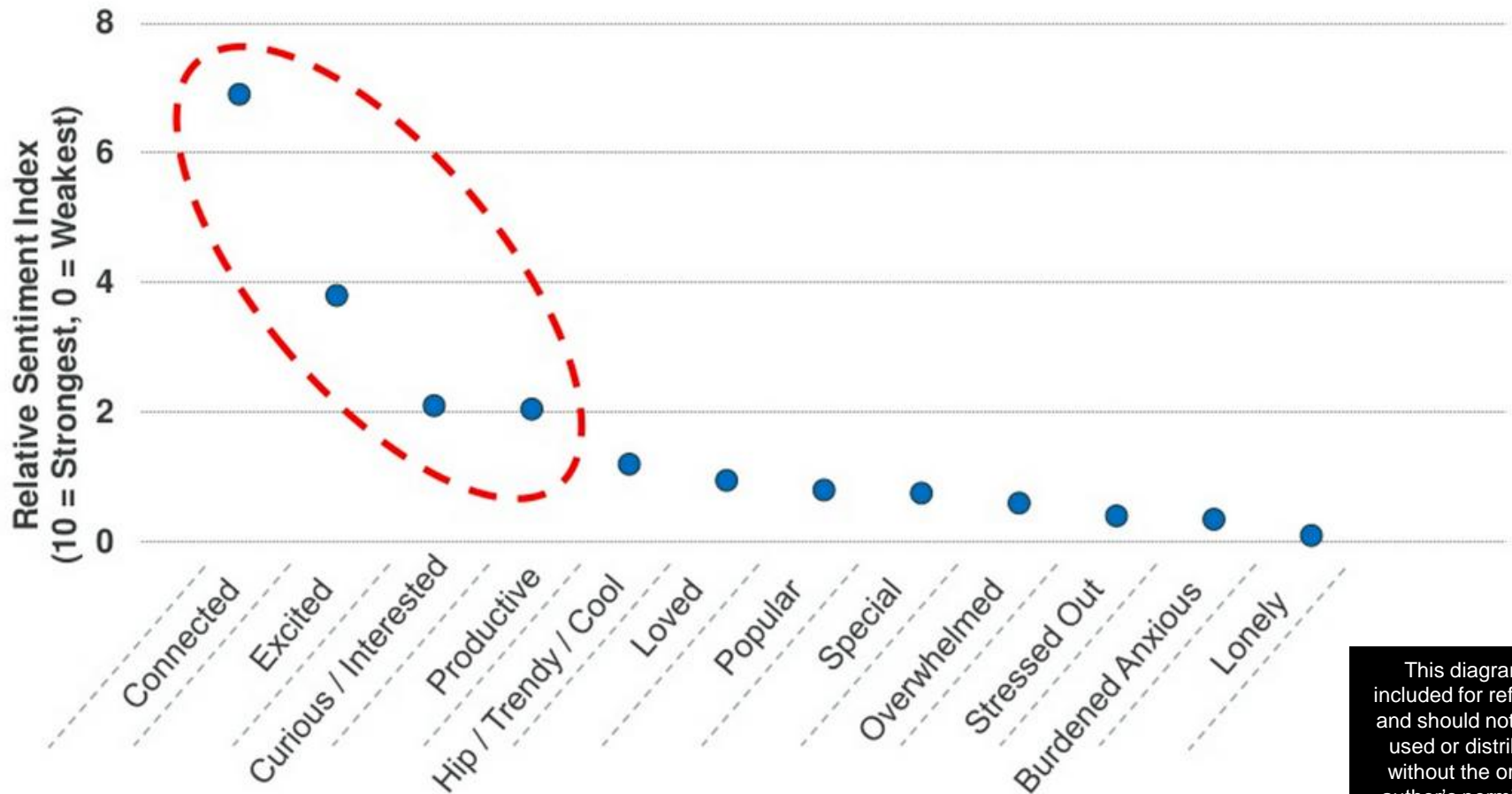
2. Go to the Trafficking in Persons (TIP) course.

- Do the Pre-test ((five module 1 questions as a pre test)).
- Then complete Module 1, including the questions at the end.

Go

Smartphones = Extraordinary Attributes - Connected + Excited + Curious / Interested + Productive

USA Smartphone User Relative Sentiment Index (10 = Strongest, 0 = Weakest), 3/13
When Asked How Social and Communication Activities on Smartphones Made You Feel



This diagram is included for reference and should not be re-used or distributed without the original author's permission.



Mobile User Behaviors

3 proposed by Google

“Urgent Now”

Immediate support with performing a task.

“Repetitive Now”

Frequent checking or validating information.

“Bored Now”

Productive use of ‘down time’.



Mobile User Behaviors

Some possible additions

“Private Now”

Using a mobile device to discreetly receive help.

“Worried Now”

Providing reassurance that help is readily available.

“Easy Now”

Removing ‘friction’ and maintaining engagement.



An App, but so much more... Organizing Framework

Performance
Support and
Job Aids

Search full
catalogue of
mobile content

Responder
Resilience

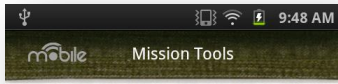


Formal and
informal courses

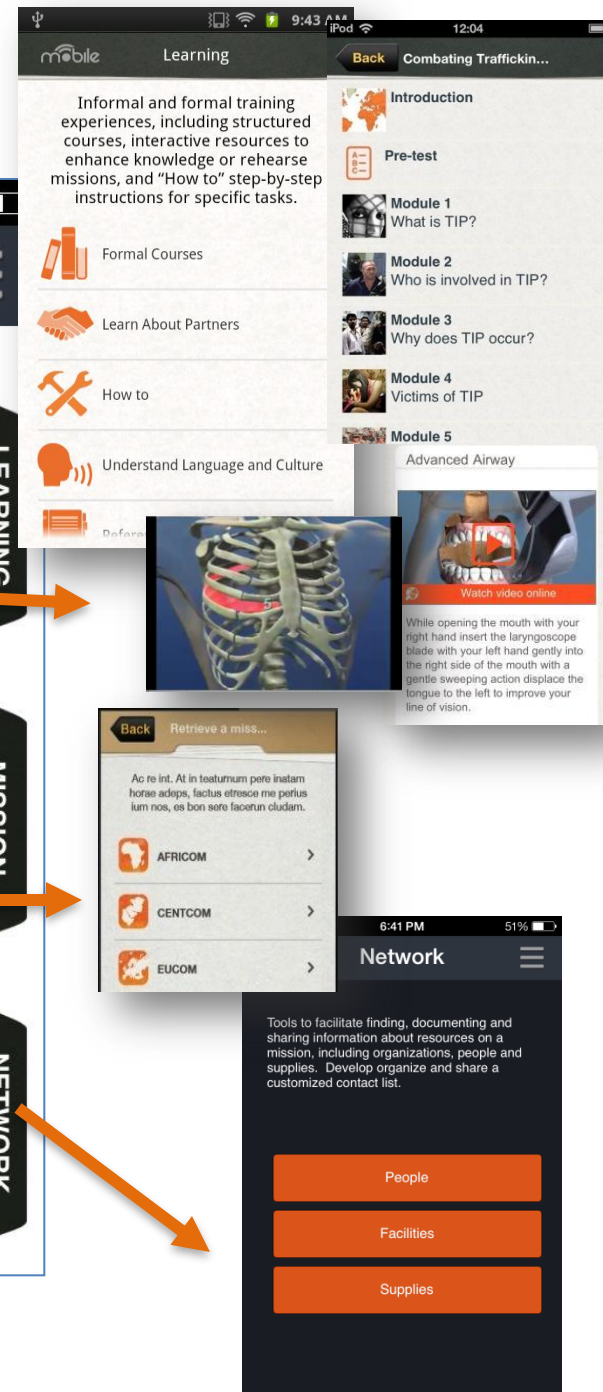
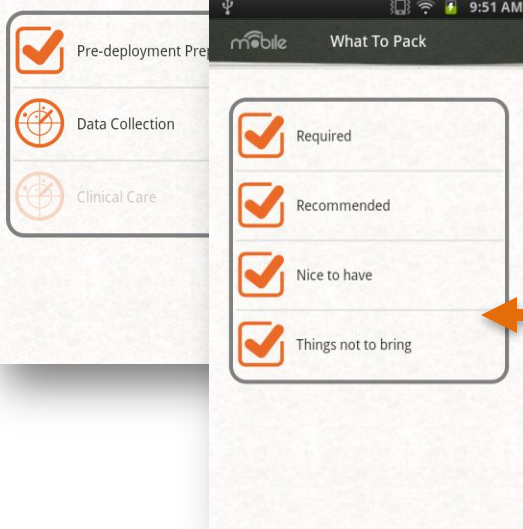
COCOM
Specific – By
mission

Document and share
contacts/resources

GMA App



Interactive job aids supporting pre-deployment preparation and field performance, including checklists, clinical aids/tools and a variety of data collection forms.



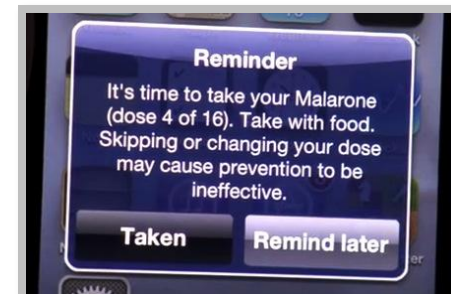
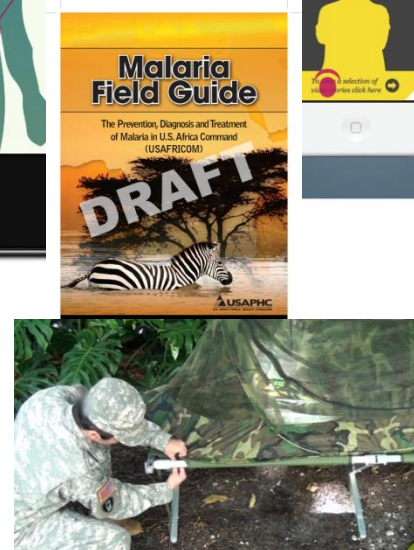
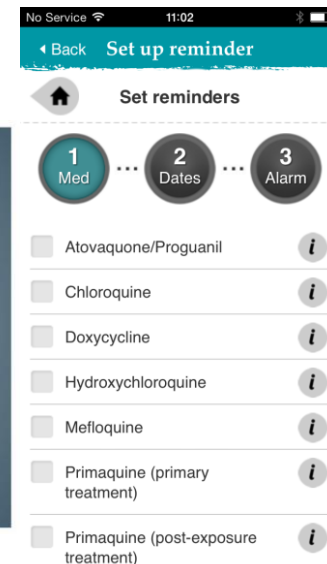
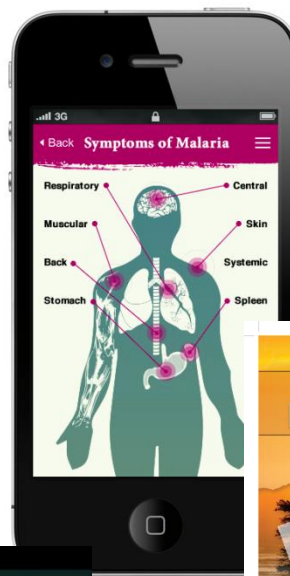
BiteBack App





Keep it Engaging

Checklists, “how to”, testable courses, ebooks, graphic illustrations, animations/videos, story-telling, games and other special features like a medication reminder.



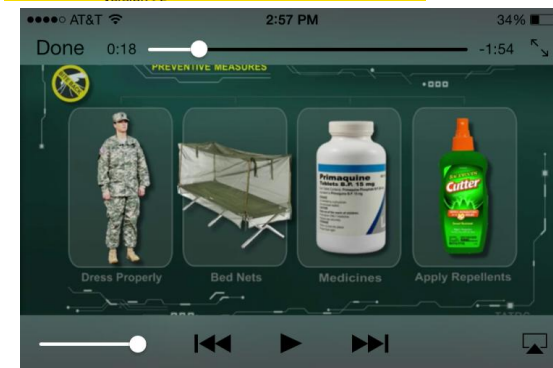


Six Instructional Videos

“How to”

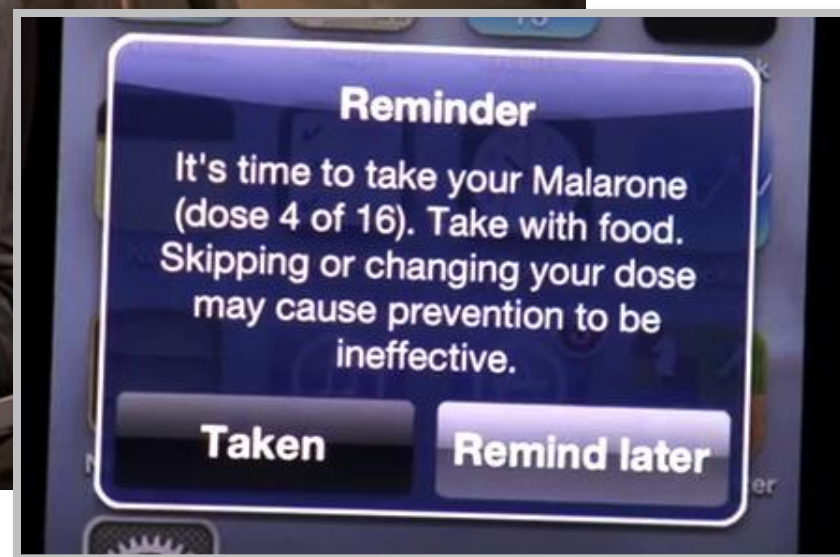
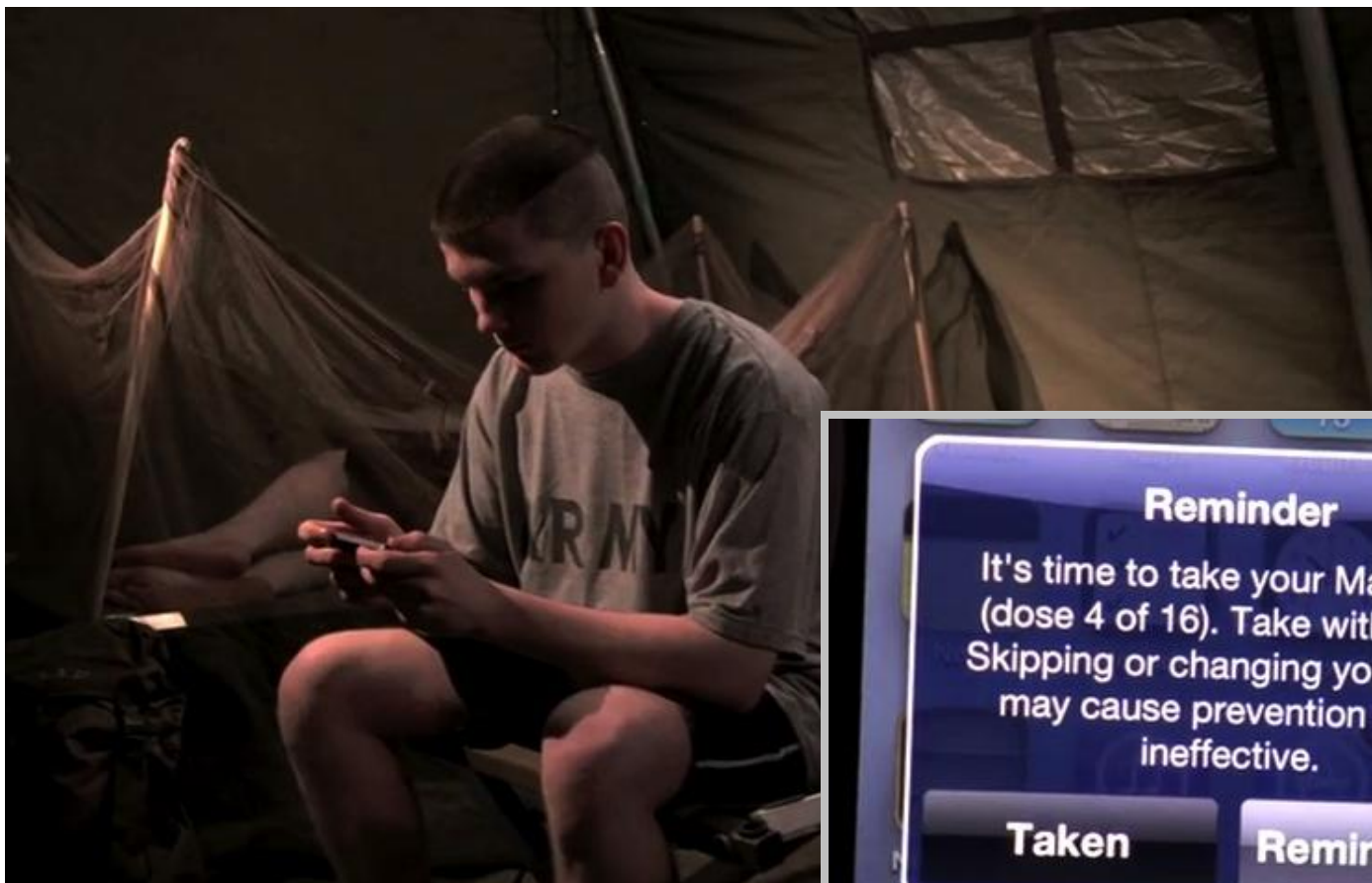
- Set up a BedNet (Poles)
- How to Set-up a Bednet (Pop Up)
- Apply Approved Skin Repellents
- Take Medications
- Dress Properly
- Inspect a Hotel Room and Use Bednet

Available in Spanish and French





Enhancing Medication Compliance





The App Infrastructure could be leveraged for any topic/domain such as Combating Trafficking in Persons or other purposes using the same infrastructure



Example Concept



Challenges

- Paradigm of mobile learning is still not accepted or well understood within DOD
- Some content is not readily available in usable formats or at all.
- Need a team of experts to manufacture content for mobile use.
- Mobile infrastructure is not inexpensive to maintain—but sunk cost has already been made.
- Central capability is required initially to help standardize and coordinate.



Opportunities

- DOD could offer a model to the global community.
- Eventually this could be a federated capability with shared mobile repositories across USG and globally.
- NGOs could be mentored along the way and in some cases teach us what content should be developed.



New Engagement Strategies

- DOD can start to make contributions through technology R&D collaboration.
- Consider using mobile learning to help capture, organize and distribute content. “iTunes for Disaster Preparedness and Response”
- Content is neutral and universally applicable.
- The best next step would be to create a pilot project to prove the concept in this domain area.



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